



THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Appeal No: **Unassigned**

In re application of: **HAGIWARA, Kenji *et al.***

Group Art Unit: **2128**

Serial Number: **09/802,974**

Examiner: **FREJD, RUSSELL W.**

Filed: **March 12, 2001**

Confirmation No.: **6944**

For: **SIMULATOR FOR AUTOMATIC VEHICLE TRANSMISSION CONTROLLERS**

Customer No. **38834**

Atty. Docket No. **010315**

**APPEAL BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

July 14, 2005

Sir:

Applicants appeal the January 7, 2005 rejection of claims 1-4.

Applicants (now referred to hereinbelow as "appellants") filed a Notice of Appeal on June 7, 2005.

**I. REAL PARTY IN INTEREST**

The real party in interest is the assignee of the subject application, which is:

**HONDA GIKEN KOGYO KABUSHIKI KAISHA**

1-1, Minami-Aoyama, 2-Chome

Minato-ku, Tokyo, Japan

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## **II. RELATED APPEALS AND INTERFERENCES**

Appellants know of no other appeals or interference proceedings related to the present appeal.

## **III. STATUS OF CLAIMS**

Pending claims 1-4 stand rejected. No claims are allowed, but claims 5-8 are objected to. The claims on appeal are claims 1-4.

## **IV. STATUS OF AMENDMENTS**

No amendments were filed subsequent to the Final Rejection.

## **V. SUMMARY OF CLAIMED SUBJECT MATTER**

The claimed invention is a simulator (see, *e.g.*, element 10 in Fig. 1) having computer-aided design programs (see, *e.g.*, element 10a in Fig. 1) for verifying an algorithm of a shift controller (see, *e.g.*, element 16 in Fig. 1) of an automatic transmission (see, *e.g.*, element T in Fig. 3) mounted on a vehicle having a change-speed system and associated hydraulic actuators (see, *e.g.*, elements C1-C4 discussed in the specification) to transmit power generated by an internal combustion engine to drive wheels based on at the least throttle opening and vehicle speed in accordance with the algorithm. (See also the specification, page 5, lines 9-16.)

The simulator includes a computer (see, *e.g.*, element 12 in Fig. 1) and a pseudo signal generating means (see, *e.g.*, elements 18 and 20 in Fig. 1). The computer stores the computer-aided design programs in memory (see, *e.g.*, element 12b in Fig. 1) and is connected to the shift

controller for inputting the algorithm thereto. The pseudo signal generating means is connected to the computer and has the functions of: (1) generating pseudo signals indicative of at least the throttle opening, the vehicle speed, and operation signals for the hydraulic actuators; and (2) sending the pseudo signals to the computer. (See also the specification, page 5, lines 17-25.)

The computer-aided design programs of the simulator have first calculating means (see, *e.g.*, steps S10-S20 and S100 of Figs. 2 and 16, respectively, and the corresponding discussions in the specification, for example, on page 18, first paragraph), second calculating means (again, refer to steps S10-S20 and S100 as an example), and algorithm verifying means (see, *e.g.*, step S102 in Fig. 16). (Steps S10-S20, S100, and S102 are of course referenced also elsewhere throughout the specification. Fig. 2 shows an example design of the programs to be downloaded on a main unit of a simulator, and Fig. 10 shows an example design of the operation based on the downloaded programs.) The first calculating means, second calculating means, and algorithm verifying means have functions as follows:

The first calculating means calculates the outputs of a first model, a second model, and a third model. The first model describes the behavior of the engine, the second model describes the behavior of the transmission, and the third model describes the behavior of a body of the vehicle at a first calculation cycle based on the algorithm and the pseudo signals.

The second calculating means inputs at least the calculated outputs of the first model and the second model and calculates an output of a fourth model, which describes non-linear behavior in the second model at a second calculation cycle that is shorter than the first calculation cycle.

The algorithm verifying means verifies the algorithm based on the outputs of the first model, the second model, and the third model.

Thus, the invention simulates automatic vehicle transmission controllers and control systems. (See, *e.g.*, the specification, page 1, lines 6-7.)

## **VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Appellants appeal the following rejections:

- (1) The rejection of claims 1 and 2 under 35 U.S.C. § 103(a) as obvious over *Hong et al.* (Wiley InterScience) in view of *Munns* (University of Wisconsin-Madison) and further in view of *Yanakiev* (UCLA Electrical Engineering); and
- (2) The rejection of claims 3 and 4 under 35 U.S.C. § 103(a) as obvious over *Hong et al.* in view of *Munns*, and further in view of *Havener et al.* (U.S. Published Patent Application 2003/0018399).

## **VII. ARGUMENT**

Appellants explain herein why the obviousness rejections should be reversed.

- A. The rejection of claims 1 and 2 as obvious over *Hong et al.* (Wiley InterScience) in view of *Munns* (University of Wisconsin-Madison) and further in view of *Yanakiev* (UCLA Electrical Engineering) should be reversed.**

Claim 1 (and claim 2 by virtue of its dependency from claim 1) describes a simulator that includes a computer, which stores computer-aided design programs. The claims specify that the computer-aided design programs include:

- (1) a first calculating means for calculating outputs that describe the behaviors of an engine, a transmission, and a body of a vehicle at a “first calculation cycle”; and
- (2) a second calculating means for inputting some of the calculated outputs from the first calculating means and for calculating an output describing non-linear behavior at a “second calculation cycle.”

Furthermore, the claims additionally specify that the second calculation cycle is shorter than the first calculation cycle.

*Accordingly, to justify the rejection, the PTO must provide:*

1. an explanation of how the asserted prior art supposedly teaches or suggests calculations for describing the behaviors of an engine, a transmission, and a body that are all performed at the *same* calculation cycle (the “first calculation cycle”);
2. an identification of which calculations of the asserted prior art are relied upon as being performed at a “second calculation cycle”; **and**
3. an indication of how the asserted prior art supposedly teaches or at least suggests that the second calculation cycle *is shorter than* the first calculation cycle.

The Office Action does not provide this information. Therefore, the Examiner has not met his burden under MPEP § 2142 to justify his rejection. **For at least this reason alone, the obviousness rejection of claims 1 and 2 should be reversed.**

Appellants now discuss: (1) their past efforts during prosecution to obtain from the Examiner(s) the pertinent information identified above; (2) the Examiners' responses; and (3) why those responses do not support the rejection.

In their submission dated September 21, 2004, page 7, bottom two paragraphs, appellants reference the Examiner's statement "the calculation cycles are inherent in Hong" from the Office Action dated June 25, 2004, page 6. Appellants explain that the claims specify different calculation cycles for different actions and that the claims further specify that some of the actions have a shorter calculation cycle than others. Thus, even if it were inherent (or even obvious) that *Hong et al.* disclosed the use of calculation cycles in automatic transmission simulation, to justify the rejection of claims 1 and 2, it would be necessary to explain how *Hong et al.* supposedly discloses the use of *two different calculation cycles as specifically described in the claims*. Appellants asserted that no such showing was provided in the first Office Action.

In the following Office Action, dated January 7, 2005, the Examiner again fails to provide this showing. On pages 2-5 of the Office Action, the Examiner repeats his statements from the previous Office Action. On page 7 of the Office Action, the Examiner attempts to rebut appellants' arguments. However, nowhere on page 7 does the Examiner indicate how *Hong et al.* supposedly discloses the specific claimed subject matter quoted above and in appellants' September 21, 2004 submission.<sup>1</sup>

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<sup>1</sup> For the record, appellants respond in detail to the Examiner's statements of page 7 of the Office Action:

In the first paragraph on page 7 of the Office Action, the Examiner mischaracterizes the "substance" of appellants' arguments. Appellants argued more than is summarized by the Examiner's single statement.

In the second paragraph on page 7 of the Office Action, the Examiner cites words in *Hong et al.*, such as "torque phase" and "inertia phase," and then he concludes that *Hong et al.* teaches a calculating means that describes

Appellants' representative then conducted a personal interview with the Examiner on March 29, 2005 to discuss the rejection.<sup>2</sup> As appellants summarize in their Request for

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the behaviors of an engine, a transmission, and a body. However, even if this assertion were true, the Examiner must also show the following to justify the rejection:

The Examiner would need to explain why he thinks that *Hong et al.* teaches or suggests that the calculations for describing the behaviors of an engine, a transmission, and a body are all performed "at a first calculation cycle" as claimed. The Examiner provides no such explanation in the Office Action. The subject matter he cites on pages 110-113, 115, 117, and 118 of *Hong et al.* could instead describe calculations that are performed at different calculation cycles.

The Office Action continues with the following statement:

The second calculations use the values calculated by the first calculation of the models mentioned above and therefore have a shorter calculation cycle.

Appellants respectfully respond that the above statement is unjustified and illogical. Regarding "values calculated by the first calculation of the models mentioned above," appellants discuss in the previous paragraph that the Examiner provides no justification for concluding that the calculations for describing the behaviors of an engine, a transmission, and a body are all performed "at a first calculation cycle" instead of at different cycles. Even if he did provide such an explanation, he does not identify which calculations disclosed by *Hong et al.* he relies upon as performed at a "second calculation cycle."

If the Examiner did indicate which *Hong et al.* calculations he relied upon as performed at a "second calculation cycle," it *might* be apparent if the second calculation cycle were shorter than the first calculation cycle as claimed. However, instead of indicating the necessary portions of *Hong et al.*, he just states that the second calculations use outputs of the first calculation, so that means that they a shorter calculation cycle. This is not true. The unidentified second calculations may have the same or a longer calculation cycle than the one or more of the calculations relied upon as having the first calculation cycles.

The last statement in the Office Action, page 7, second paragraph, is also illogical and not fully supported. The statement includes an improper quote from claim 1. Perhaps the Examiner intended to reference the claim recitation "a second calculation cycle which is shorter than the first calculation cycle."

The Examiner also asserts that "the claim does not specify what the inputs of the calculation algorithm are," but this assertion is not fully supported. Claim 1 states that the inputs of the second calculation means include "calculated outputs of the first model and the second model."

The Examiner further writes that a failure to specify the inputs of the calculation algorithm would justify his conclusion that *Hong et al.* teaches a particular claim limitation. Appellants respectfully disagree. Regardless of whether the inputs are suggested, because the claim recites "a second calculation cycle which is shorter than the first calculation cycle," the Examiner must identify the calculation cycles he relies upon in the prior art to teach or suggest both the first and second calculation cycles, and he also has to explain how the prior art teaches or suggests that the second calculation cycle is shorter than the first calculation cycle. He never provides these showings.

<sup>2</sup> Appellants provided a written summary of the interview discussion in the Request for Reconsideration dated April 5, 2005. In an Advisory Action dated May 4, 2005, the Examiner disputed the accuracy of appellants'

Reconsideration dated April 6, 2005, the examiners present during the interview stated that some of the claimed subject identified above was inherent. Specifically: (1) they stated that it is inherent that the calculations for describing the behaviors of an engine, a transmission, and a body are all performed at the same calculation cycle; and (2) they also stated that it is inherent that the *Hong et al.* second calculation cycle is shorter than the first calculation cycle. This cannot be true. Regarding the first statement, appellants' representative explained that the simulator described by *Hong et al.* can very well be configured so that the calculations for describing the behaviors of the engine, the transmission, and the body are not all performed at the same calculation cycle. Therefore, performing all three calculations at the same calculation cycle cannot be inherent. Regarding the second statement, appellants' representative explained that the *Hong et al.* simulator could be configured so that the processing associated with the "second calculation cycle" has a calculation cycle that is greater than or equal to the calculation cycle for the processes that describe the behaviors of the engine, the transmission, and the body. Therefore, the "second calculation cycle" being shorter than the "first calculation cycle" could not be inherent.

Although the examiners initially responded that they agreed that the *Hong et al.* simulator could be configured in these alternative embodiments (i.e., without calculations for the engine, transmission, and body performed at the same calculation cycle and/or with the "second

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summary, and he cited his own interview summary record. However, his interview summary record provides no statement inconsistent with appellants' summary. Also, the Examiner provides no elaboration of the interview discussion that would be inconsistent with the Examiner's summary. Certainly, the Examiner did not use this opportunity to explain how the asserted prior art taught the subject matter in question.

The references in this brief to the interview discussion are based on appellants' records. Appellants acknowledge the statement of disagreement in the Advisory Action.



calculation cycle” being greater than or equal to the other calculation cycles), later in the discussion, they resumed saying that the subject matter was inherent. However, the examiners never explained how they could justify their belief.

The Examiners added that, as a tentative impression, it did not seem possible to distinguish appellants’ invention from the prior art by expounding upon the calculation cycles. However, if the PTO is going to issue a rejection based on a prior art reference, it has to be able to justify the rejection *based on that reference*. A general suspicion that the claimed subject matter must have been documented in public somewhere is insufficient for maintaining a rejection.

Despite appellants’ arguments of April 6, 2005 that the subject matter quoted above from the claims has not been identified in the asserted prior art, the Examiner’s Advisory Action dated May 4, 2005 indicated that the rejection would be maintained. However, the Examiner still did not indicate where the prior art the claimed subject matter could be found.

Surely, if an applicant specifically argues repeatedly that certain claim features are not taught by an applied reference, an Examiner cannot justify maintaining an art rejection without explaining how the reference supposedly teaches the claimed subject matter. Appellants reference *Ex parte Yamanaka et al.*, Appeal No. 2003-0121 (not binding precedent)<sup>3</sup> as pertinent. In reversing an examiner’s rejection, the panel of the Board wrote that the Examiner did not adequately indicate how the asserted prior art supposedly rendered the rejected claims unpatentable. Note, for example, from page 8, “Yet, even though specifically argued by

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<sup>3</sup> Although this opinion is not binding precedent, appellants submit that the precedent *on which this opinion is based* applies also to the present appeal.

appellants, the examiner has made no effort to explain where this [a claim feature] is taught by the applied references.”

In the present appeal, analogous to *Ex parte Yamanaka et al.*, despite appellants’ repeated assertions that certain claim features are not taught by an applied reference, the Examiner never responds with a specific citation of the claim features in the applied prior art. Appellants have no choice other than to appeal the rejection to the Board of Patent Appeals and Interferences.

Accordingly, appellants request that the Board reverse the obviousness rejection of claims 1 and 2.

**B. The rejection of claims 3 and 4 as obvious over *Hong et al.* in view of *Munns*, and further in view of *Havener et al.* (U.S. Published Patent Application 2003/0018399) should be reversed.**

This rejection relies on *Hong et al.* and *Munns* to reject base claim 1. However, as shown above, *Hong et al.* and *Munns* have not been shown to support the rejection of claim 1. Therefore, the rejection of claims 3 and 4 (which depend from claim 1) has not been justified.

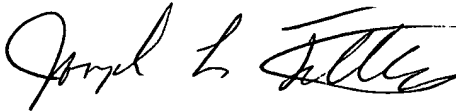
For at least this reason, appellants request that the Board reverse the obviousness rejection of claims 3 and 4.

## **VIII. CONCLUSION**

For the above reasons, appellants request that the Board of Patent Appeals and Interferences reverse the Examiner’s rejection of claims 1-4.

If this paper is not timely filed, appellants petition for an extension of time. The fee for any such extension may be charged to our Deposit Account No. 50-2866, along with any other additional fees, which may be due.

Respectfully submitted,  
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

A handwritten signature in black ink, appearing to read "Joseph L. Felber". The signature is fluid and cursive, with the first name "Joseph" being more legible than the last name "Felber".

Joseph L. Felber  
Attorney for Appellants  
Reg. No. 48,109

Enclosures: Claims appendix  
Evidence appendix  
Related proceedings appendix

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**CLAIMS APPENDIX**

Claim 1 (Original): A simulator having computer-aided design programs for verifying an algorithm of a shift controller of an automatic transmission mounted on a vehicle having a change-speed system and associated hydraulic actuators to transmit power generated by an internal combustion engine to drive wheels based on at least throttle opening and vehicle speed in accordance with the algorithm, comprising:

a computer which stores the computer-aided design programs in memory and connected to the shift controller for inputting the algorithm;

pseudo signal generating means connected to the computer for generating pseudo signals indicative of at least the throttle opening, the vehicle speed and operation signals for the hydraulic actuators and for sending the pseudo signals to the computer;

wherein the computer-aided design programs include:

first calculating means for calculating outputs of a first model describing behavior of the engine, a second model describing behavior of the transmission and a third model describing behavior of a body of the vehicle at a first calculation cycle based on the algorithm and the pseudo signals;

second calculating means for inputting at least the calculated outputs of the first model and the second model and for calculating an output of a fourth model describing non-linear behavior in the second model at a second calculation cycle which is shorter than the first calculation cycle; and

algorithm verifying means for verifying the algorithm based on the outputs of the first model, the second model and the third model.

Claim 2 (Original): A simulator according to claim 1, wherein the fourth model describes the behavior of supply of hydraulic oil to clutches of gears to be shifted to and from at a shift.

Claim 3 (Original): A simulator according to claim 1, wherein the second calculation cycle is determined based on a step response relative to an input to the fourth model.

Claim 4 (Original): A simulator according to claim 2, wherein the second calculation cycle is determined based on a step response relative to an input to the fourth model.

Claim 5 (Original): A simulator according to claim 3, wherein the fourth model is configured to output the input through a  $\lambda$ -function and the second calculation cycle is determined to be a value which is proportional to a reciprocal of the  $\lambda$  -function.

Claim 6 (Original): A simulator according to claim 4, wherein the fourth model is configured to output the input through a  $\lambda$ -function and the second calculation cycle is determined to be a value which is proportional to a reciprocal of the  $\lambda$  -function.

Claim 7 (Original): A simulator according to claim 1, wherein the second calculating means is started in synchronism with the first calculating means, but no recursive processing is made until the calculation of the first calculating means have been completed.

Claim 8 (Original): A simulator according to claim 7, wherein the second calculating means outputs the calculation result processed based on parameters inputted at the previous time and then conducts new calculations based on the parameters inputted at the current time.

**EVIDENCE APPENDIX**

No evidence under 37 C.F.R. § 41.37(c)(1)(ix) is submitted.

**RELATED PROCEEDING APPENDIX**

No decisions under 37 C.F.R. § 41.37(c)(1)(x) are rendered.